which parallax most affects the angle of position is when the great circle passing through both stars, passes also through the pole of the ecliptic. But to ascertain how far any particular star is or is not favourable to the application of the method, and the times of the year when it ought to be observed, it is necessary to make a calculation, the mathematical principles of which the author explains; and includes, in proper formulæ, which he then applies to the formation of a list of about 70 stars, as a specimen.

He concludes by observing, that by a certain mode of using the double image-position micrometer, first explained to him by Captain Kater, the application of this method ceases to be limited to close stars; and that stars of any moderate distance, otherwise favourably situated, may be equally well subjected to examination with nearer ones; and that thus the range of objects placed within our power becomes unlimited.

A Formula for expressing the Decrement of Human Life. In a Letter addressed to Sir Edward Hyde East, *Bart. M.P. F.R.S. By* Thomas Young, *M.D. For. Sec. R.S. Communicated February 2,* 1826. Read April 19, 1826. [*Phil. Trans.* 1826, *p.* 281.]

The author first observes that an opinion is generally prevalent, of a decided increase in the average duration of human life in many parts of Europe; but he yet regards it as probable that this improvement has been much exaggerated, partly on account of the limited number of persons on whom the observations have been made, and partly from erroneous views respecting the profits of assurance companies.

He then examines the evidence on which this opinion rests, and gives a comparative statement of the annual average of mortality, the mean term of full life, and the mean age of mankind, according to a great number of different authorities; and considers that a prolongation of life to the extent of one year in eight, is a much fairer estimate than one in three, which some have maintained, even on the limited grounds of the experience on which they have reasoned.

Another mode, he observes, of easily appreciating the regularity and analogies of tables is the construction of a curve in which, the abscissa representing the age, the ordinate shall represent the corresponding decrements of life. This he accordingly does, and its inspection he observes is sufficient to render us suspicious of the accuracy of the Carlisle tables; while he considers a combination of these and the Northampton tables, and the London parish registers, as likely to give the fairest estimate.

After commenting on the various documents before him, the author next proposes the formula mentioned in the title, which consists of terms having respectively a preponderating influence in infancy, in youth, in middle age, and in old age.

This is followed by a series of numerical documents, and the values of the formula calculated for each year; and the curve corre-

sponding to this formula is also laid down, and its agreement with the adjusted value placed in evidence. The author concludes with some remarks on an error fallen into by Dr. Price, depending on the periodical payment of interest; and with a comparison of climacteric years, as taken from different tables.

Account of an Experiment on the Elasticity of Ice. By Benjamin Bevan, *Esq. In a Letter to Dr.* Thomas Young, *For. Sec. R.S.* Read April 27, 1826. [*Phil. Trans.* 1826, *p.* 304.]

Mr. Bevan took the opportunity of the severe frost of the last winter to determine the modulus of elasticity of ice, which he did by cutting a rectangular plate of that substance from the surface of a pond of 100 inches in length, 10 in width, and about 4 in thickness. The deflection produced by a weight of 25 lbs. was 0·206 inches, from which he concludes the modulus of elasticity to be 2,100,000 feet.

The modulus for water he states at 2,178,000 feet, on a certain hypothesis respecting its cubical compression.

Results of the Application of Captain Kater's *Floating Collimator to the Astronomical Circle at the Observatory of Trinity College, Dublin; and Remarks relative to those Results. By the Rev.* J. Brinkley, *D.D. F.R.S. P.R.I.A. Communicated by the Board of Longitude February* 2, 1826. Read April 27, 1826. [*Phil. Trans.* 1826, *p.* 307.]

Dr. Brinkley, in this communication, states a number of observations made with the floating collimator of Captain Kater, as applied to the Dublin circle, in which he observes it affords the means of ascertaining the index error with as great precision as by reversion, and that in several points of view it is undoubtedly superior to that method. The reversing principle of the Dublin circle, he observes, serves very conveniently for a measure of the accuracy of the floating collimator, and serves to show very satisfactorily, that applying this instrument to any circle will introduce no error depending on the collimator itself.

The author regards the results of these observations as highly favourable to the principle of the collimator, which he considers as a new astronomical power, and as even belonging to a more advanced era of practical astronomy than the present.

The observations consist of, First, the mean zenith distances of a number of stars, deduced solely by the application of the index correction, as determined by the collimator. In this case the circle was used as a mural circle, or rather as two mural circles, having been used with its face east and also west. Secondly, the inclination of the line of collimation of the collimator, as determined on different days. As this appears to have been very permanent (though such permanence is not essential in practice), he concludes that the collimator is applicable to the most powerful instruments. Thirdly,